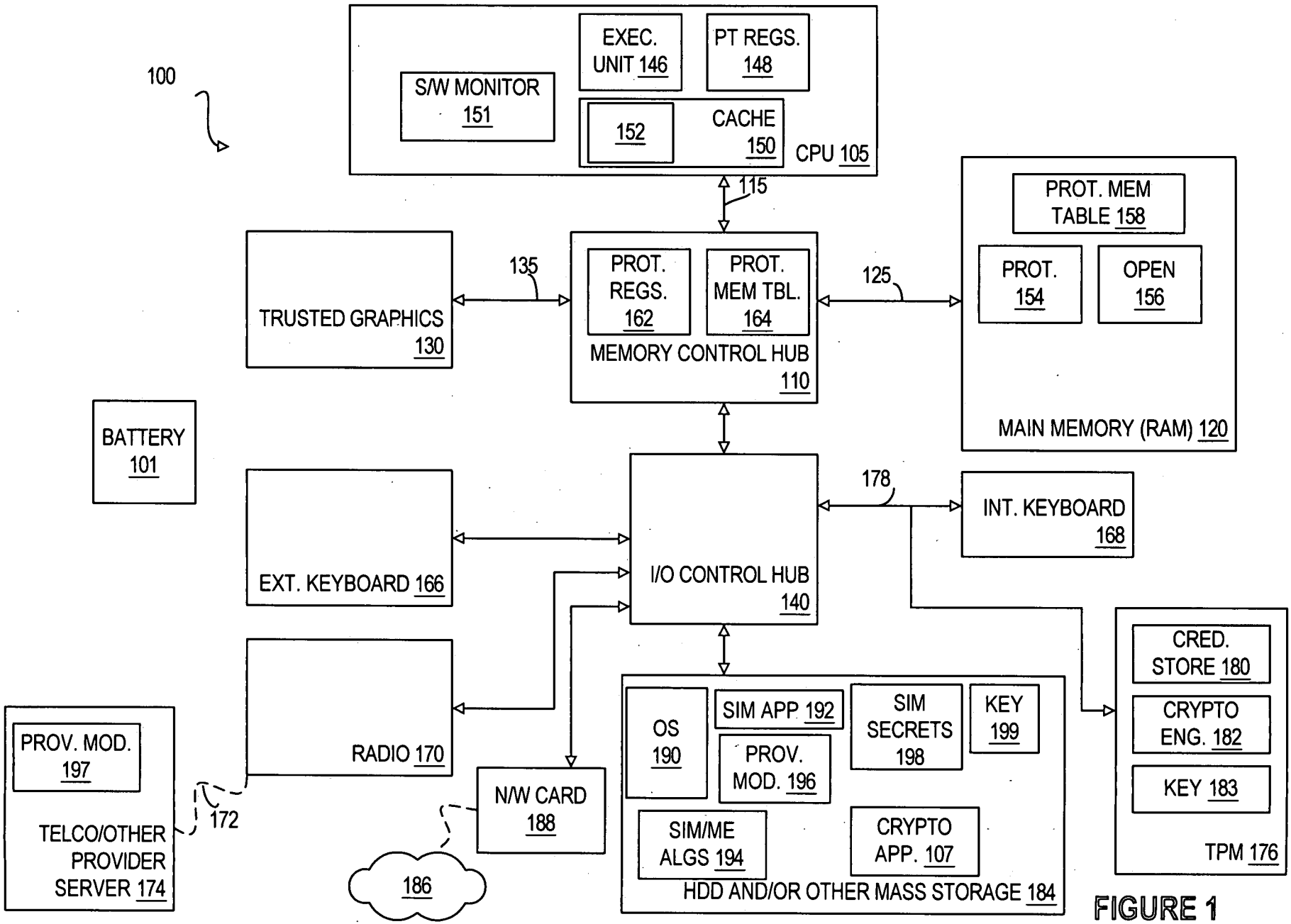
100
EXEC. UNIT 146
PT REGS. 148
S/W MONITOR 151
152
CACHE 150
CPU 105
115
PROT. MEM TABLE 158
PROT. 154
OPEN 156
MAIN MEMORY (RAM) 120
135
125
TRUSTED GRAPHICS 130
PROT. REGS. 162
PROT. MEM TBL. 164
MEMORY CONTROL HUB 110
BATTERY 101
178
INT. KEYBOARD 168
EXT. KEYBOARD 166
I/O CONTROL HUB 140
CRED. STORE 180
CRYPTO ENG. 182
KEY 183
TPM 176
RADIO 170
PROV. MOD. 197
OS 190
SIM APP 192
SIM SECRETS 198
KEY 199
PROV. MOD. 196
N/W CARD 188
172
TELCO/OTHER PROVIDER SERVER 174
SIM/ME ALGS 194
CRYPTO APP. 107
186
HDD AND/OR OTHER MASS STORAGE 184

FIGURE 1

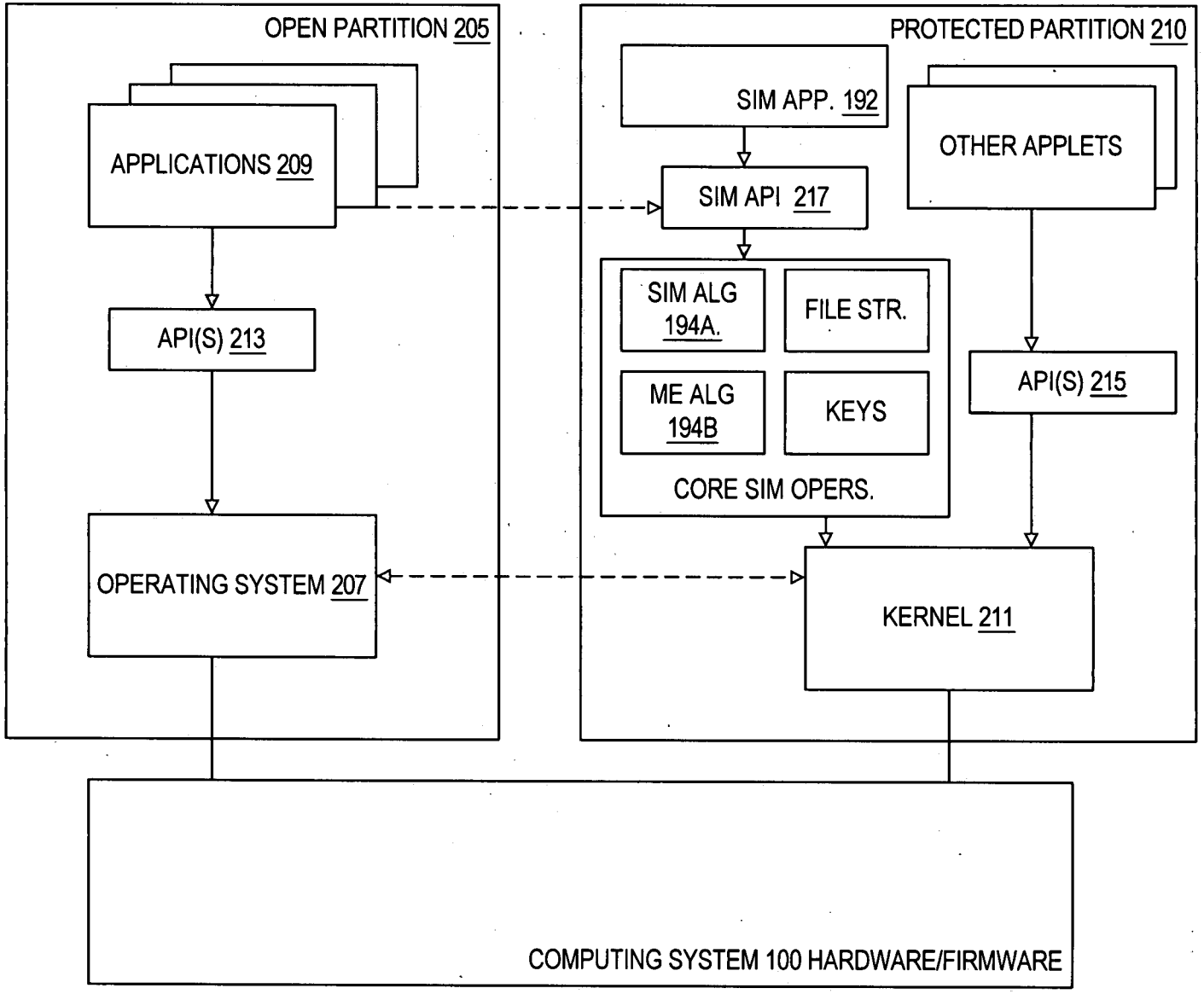
OPEN PARTITION 205
APPLICATIONS 209
API(S) 213
OPERATING SYSTEM 207
PROTECTED PARTITION 210
SIM APP. 192
SIM API 217
OTHER APPLETS
SIM ALG 194A.
FILE STR.
ME ALG 194B
KEYS
CORE SIM OPERS.
API(S) 215
KERNEL 211
COMPUTING SYSTEM 100 HARDWARE/FIRMWARE

FIGURE 2

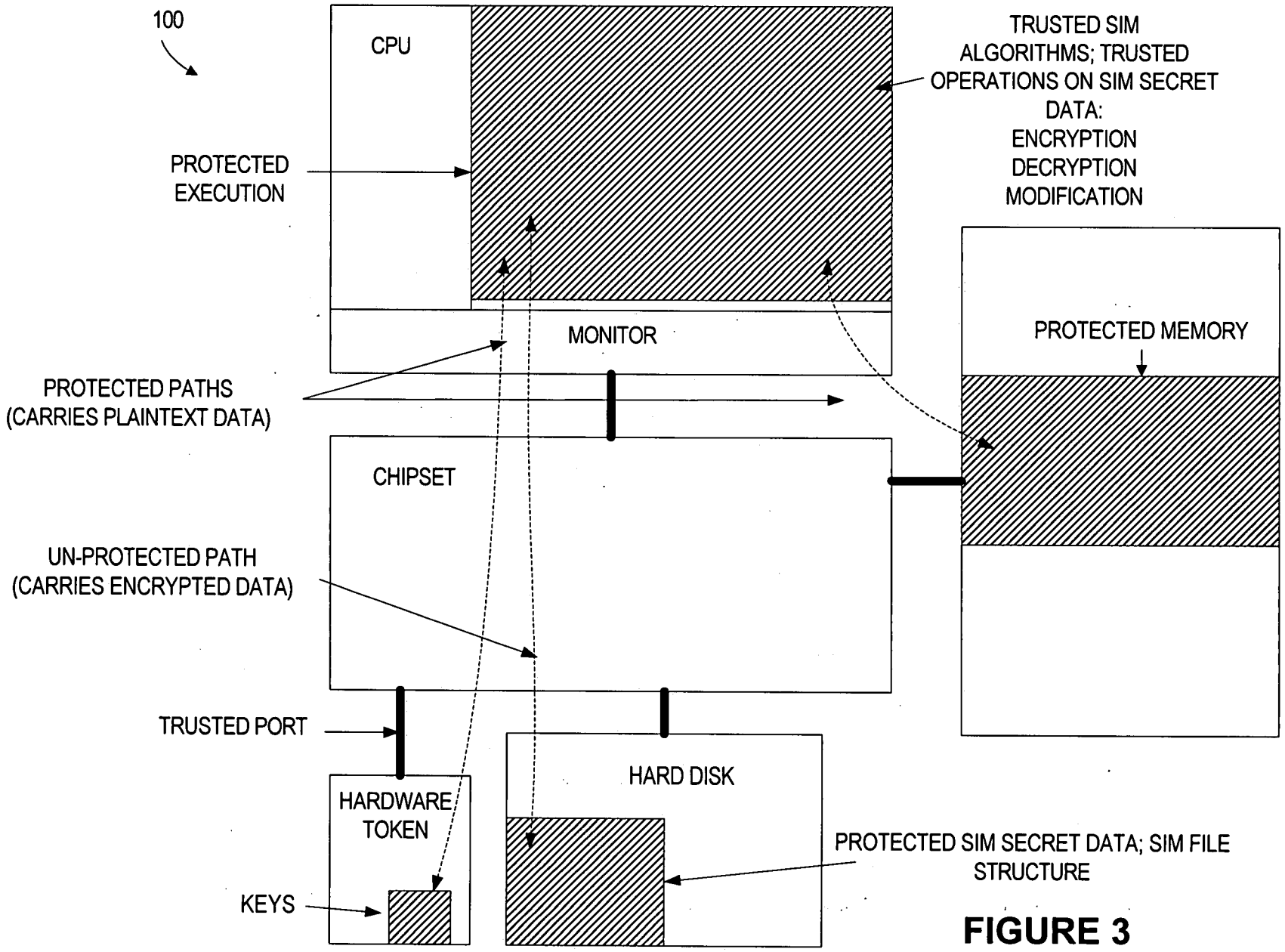
100
CPU
TRUSTED SIM ALGORITHMS; TRUSTED OPERATIONS ON SIM SECRET DATA:
ENCRYPTION
DECRYPTION
MODIFICATION
PROTECTED EXECUTION
MONITOR
PROTECTED MEMORY
PROTECTED PATHS (CARRIES PLAINTEXT DATA)
CHIPSET
UN-PROTECTED PATH (CARRIES ENCRYPTED DATA)
TRUSTED PORT
HARD DISK
HARDWARE TOKEN
PROTECTED SIM SECRET DATA; SIM FILE STRUCTURE
KEYS

FIGURE 3

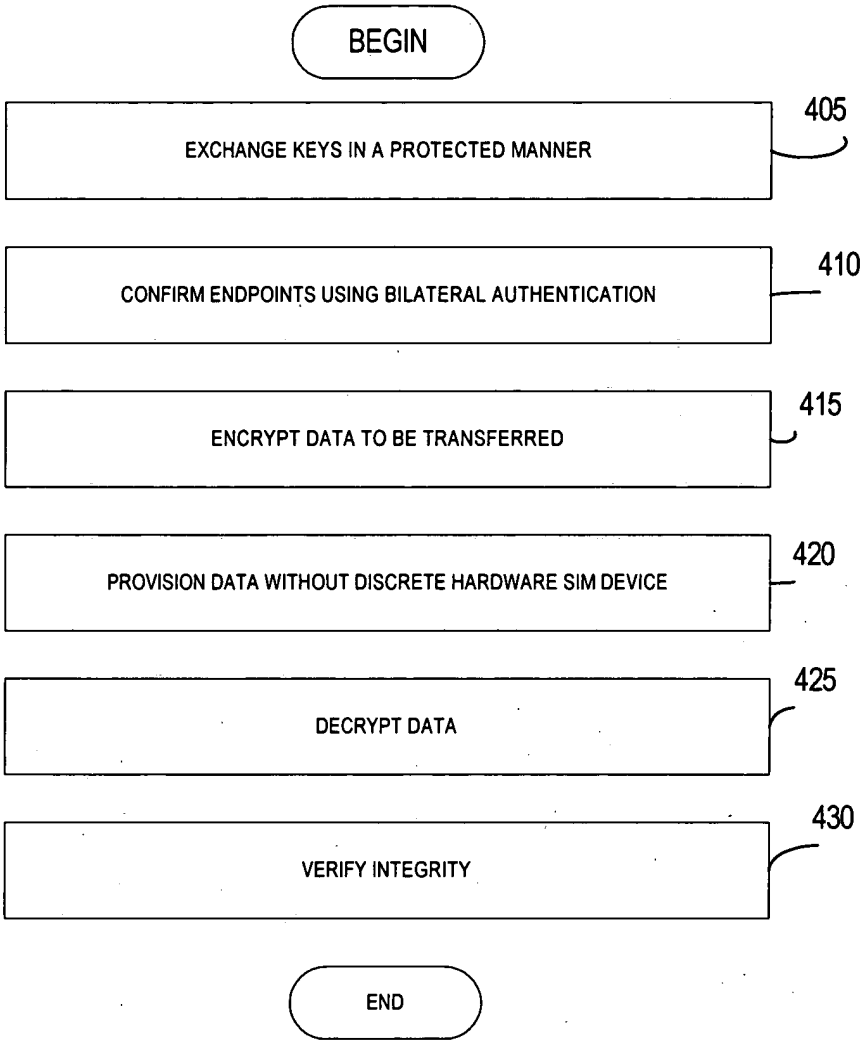
BEGIN
EXCHANGE KEYS IN A PROTECTED MANNER
405
CONFIRM ENDPOINTS USING BILATERAL AUTHENTICATION
410
ENCRYPT DATA TO BE TRANSFERRED
415
PROVISION DATA WITHOUT DISCRETE HARDWARE SIM DEVICE
420
DECRYPT DATA
425
VERIFY INTEGRITY
430
END

FIGURE 4

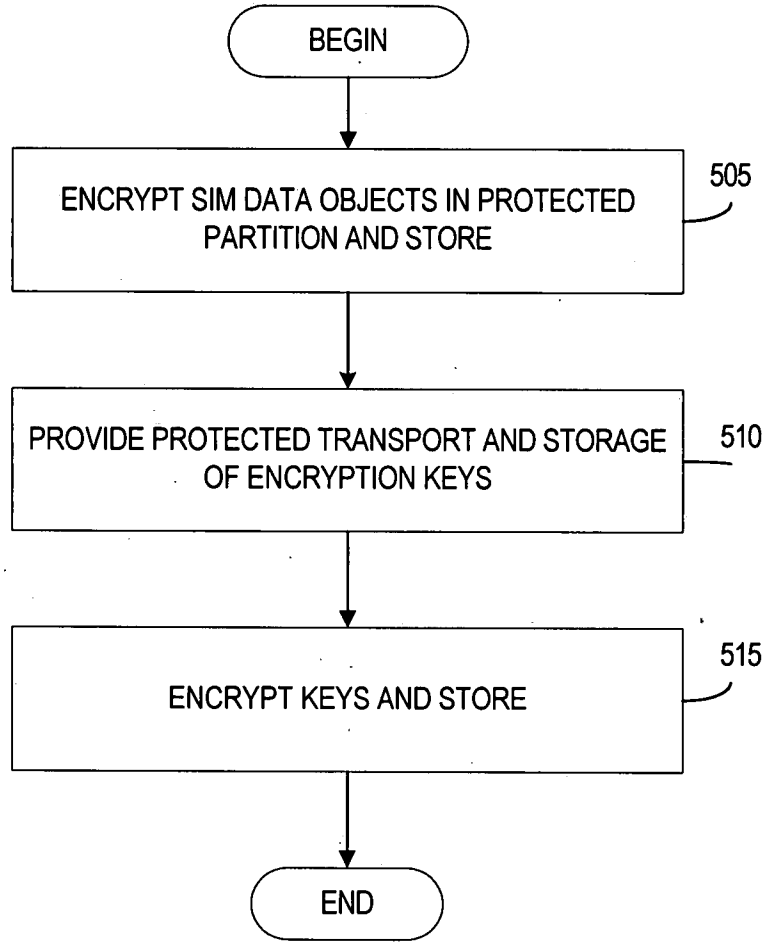
BEGIN
ENCRYPT SIM DATA OBJECTS IN PROTECTED PARTITION AND STORE
505
PROVIDE PROTECTED TRANSPORT AND STORAGE OF ENCRYPTION KEYS
510
ENCRYPT KEYS AND STORE
515
END

FIGURE 5

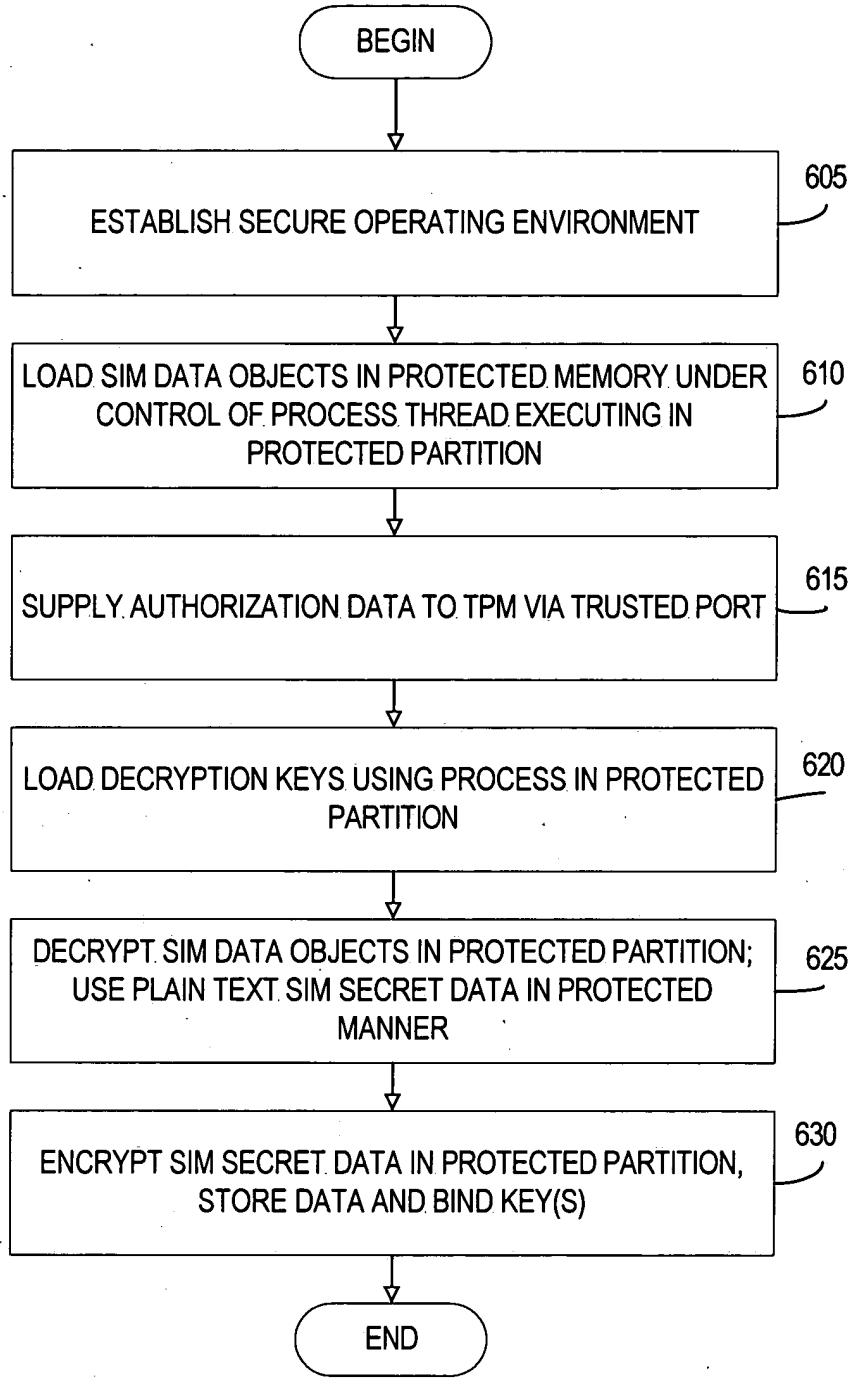
BEGIN
ESTABLISH SECURE OPERATING ENVIRONMENT
605
LOAD SIM DATA OBJECTS IN PROTECTED MEMORY UNDER CONTROL OF PROCESS THREAD EXECUTING IN PROTECTED PARTITION
610
SUPPLY AUTHORIZATION DATA TO TPM VIA TRUSTED PORT
615
LOAD DECRYPTION KEYS USING PROCESS IN PROTECTED PARTITION
620
DECRYPT SIM DATA OBJECTS IN PROTECTED PARTITION; USE PLAIN TEXT SIM SECRET DATA IN PROTECTED MANNER
625
ENCRYPT SIM SECRET DATA IN PROTECTED PARTITION, STORE DATA AND BIND KEY(S)
630
END

FIGURE 6